

May 20, 1980

CD-80-02 (LDV)

Dear Light-Duty Manufacturer:

Subject: Abbreviated Certification Guideline for Alternative
Dynamometer Power Absorption Values

Manufacturers have been provided with the opportunity to participate in a voluntary abbreviated certification review program. As part of that program, EPA is providing manufacturers with implementation guidelines. The enclosed guideline presents criteria that a manufacturer may employ when considering alternative dynamometer power absorption values.

This guideline supplements the information that is contained in the Clean Air Act and the Code of Federal Regulations. This guideline is not intended to establish new procedures but is provided to assist manufacturers participating in the abbreviated certification process. Adherence to this guideline will lessen the possibility of disagreement between the manufacturer's and EPA's determination at the time of review.

Because this guideline is meant to meet your needs, it is subject to revision to improve clarity or further interpret the regulations. Any comments you wish to provide will be appreciated. All affected manufacturers will be notified of any revisions to this guideline. Until such time, manufacturers should consider the enclosed guideline when selecting alternative dynamometer power absorption values.

If you have any questions regarding this guideline, please contact your Certification Team.

Sincerely,

Robert Maxwell, Director
Certification Division
Mobile Source Air Pollution Control

Enclosure

Alternative Dynamometer
Power Absorption Values
May 20, 1980

Introduction

All vehicles to be tested for emission compliance and/or for fuel economy must use a dynamometer power absorption (DPA) value based on either vehicle frontal area (40 CFR 86.129-80) or a method which yields results equivalent to those obtained using the EPA Recommended Practice for Determination of Vehicle Road Load (Attachment I to OMSAPC Advisory Circular [A/C] No. 55B).

The following guidelines are provided as additional information to aid manufacturers following abbreviated certification review in the use of alternative DPA values for only those engine families in the abbreviated review program. A/C No. 55B discusses EPA policy regarding alternatively determined DPA values, and the reader is encouraged to review that circular before using these guidelines.

Discussion

1. As noted in section IV of A/C No. 55B, EPA will approve an alternative procedure for determining DPA values if the manufacturer determines and states the procedure will yield equivalent results compared with EPA's recommended procedure. Therefore, if such equivalency has been determined, the manufacturer should state in his application for certification that the two procedures yield equivalent results and then he may proceed with the Voluntary Abbreviated Certification Review Program without prior EPA approval of his DPA determination method. EPA may review that determination as part of an audit or the final review for certification and may request information to support the manufacturer's statement if EPA's recommended procedure is not used.

2. Paragraphs V.F.2, V.F.3, and IX.B of A/C No. 55B describe which tires are to be installed on emission-data, running change, and fuel economy data vehicles. Unless the manufacturer has good reason to believe that fuel economy data generated with these tires will be unrepresentative, the tires specified in the above mentioned paragraphs of A/C No. 55B should be used. (Also, see the vehicle selection guidelines for tires to be installed on test vehicles.) Otherwise, manufacturers should expect that EPA will request the information necessary to justify the use of the alternate tires on the test vehicles. This justification should discuss the parameters delineated in paragraph V.D.7.e of A/C No. 55B, tire sales information and tire availability information.

3. As discussed in paragraphs VI.F and G. of A/C No. 55B, the use of a DPA value which is greater than the value otherwise determined via an alternative procedure will be acceptable, and the use of a coastdown time which is less than the value otherwise determined via an alternative procedure will also be acceptable. Therefore, for engine families undergoing abbreviated certification review, manufacturers need not request or obtain prior approval for use of such shorter coastdown times or higher DPA values. Their use, however, should be documented in the manufacturer's application for certification along with the value(s) originally determined via the alternative procedure. (Note: Updating DPA values will be handled following the procedures discussed in item 5, below.) If EPA conducts a full on-the-road coastdown confirmation, it will attempt to confirm the original test results--that is, the original coastdown time and alternative DPA value, not the optionally shorter time or higher DPA value.

4. Since the DPA value is one of several criteria used to select emission-data vehicles, It should be determined and made available to those persons responsible for emission-data vehicle selection prior to their selection. (See the vehicle selection guidelines.)

5. Except under unusual circumstances, EPA would expect that the manufacturer will have decided upon final DPA values before emission-data, running change, and fuel economy data vehicles are selected for testing. EPA is concerned that updating DPA values (i.e., changing DPA values from those decided upon) after such test vehicles are selected for testing may jeopardize the appropriateness of those vehicle selections for certification purposes. Therefore, DPA value updates will be handled in the following manner:

A. If a 4,000-mile emission test has begun on an emission-data, running change, or fuel economy data vehicle within a population represented by an alternate DPA value, the population using that DPA value cannot change and the DPA value cannot be updated (except in response to a physical change in the vehicle design which would be expected to affect the DPA value as discussed in paragraph VII.D or in response to failure to confirm as described in section VII.F of A/C No. 55B).

B. If a 4,000-mile emission test has not begun on an emission-data, running change, or fuel economy data vehicle within a population represented by a DPA value, updating that DPA

value is acceptable provided the emission-data vehicle selections are reevaluated and new vehicles are selected, if necessary, according to the emission-data vehicle selection guidelines.

6. As indicated in paragraph VI.C of A/C No. 55B, a statement should appear on the Vehicle Log Sheet that an alternative procedure was used. For the purposes of this voluntary program, a footnote should also appear at the bottom of the page indicating that EPA's recommended procedure was used, for example, "[manufacturer] has determined that the alternative procedure used to determine dynamometer power absorption values yields equivalent results compared with EPA's recommended procedure." Information to support such a statement should be available for EPA review during an audit or, upon request, during review of the final application. As indicated in paragraph IV.A of A/C No. 55B, this statement will not relieve the manufacturer of the responsibility for ensuring that the procedure will yield results which can be confirmed according to the provisions of A/C Mo. 55B when using EPA's recommended procedure.

7. Following the procedures discussed in paragraph VII.F and Attachment II of A/C No. 558, manufacturers must always perform a dynamometer coastdown confirmation (i.e., "quick-check") on the dynamometer for each and every emission-data, running change, or fuel economy data vehicle using an alternatively determined DPA value. If the first attempt results in a failure to confirm, a second attempt may be performed on the same or a different dynamometer. (Note: Emission and fuel economy tests should be conducted on the same dynamometer on which quick-check confirmation is demonstrated. If this has not been the manufacturer's practice to date, this practice should be adopted as soon as practicable for the rest of the 1981 model year certification program. In any event, beginning with the 1982 model year, EPA will expect all manufacturers to routinely perform emission and fuel economy tests for a vehicle on the same dynamometer on which quick-check confirmation is demonstrated. If more than one dynamometer is used to emission and fuel economy test a vehicle, then quick-check confirmation must be demonstrated on each of those dynamometers with that test vehicle.) All confirmation attempts must be indicated on the vehicle log sheets and in the manufacturer's test results when provided to EPA.

8. Because passing the dynamometer coastdown confirmations (discussed in item 7, above) will not necessarily preclude EPA's further scrutiny of coastdown times and DPA values, manufacturers

may wish to conduct road coastdown confirmations (at an EPA-approved independent test facility) in order to help assure their acceptance by EPA. Manufacturers are encouraged to conduct such coastdown confirmations if there is good cause (e.g., if a vehicle fails the dynamometer coastdown or "quick-check") or if the manufacturer wants to minimize the possibility of delays in EPA's processing of the manufacturer's applications for certification because of the problems involving the acceptability of DPA values. Information that EPA will consider and the manufacturer should consider in determining whether or not the vehicles so coasted down on the road are adequate to provide EPA with such assurances include:

A. The difference between the DPA value based on frontal area and the alternatively determined DPA value;

B. The difference between an alternatively determined DPA value confirmed in the current year or in previous years on a similar vehicle and the unconfirmed alternatively determined DPA value in question; and

C. DPA values which may appear to be low in comparison with DPA values from other members of a manufacturer's product line, even when considering design differences.

9. If the manufacturer elects to test vehicles in a given population using a DPA value determined from frontal area while the original alternative DPA value is in the process of being confirmed on the road due to a request by EPA, subsequent use of the alternative DPA value for vehicles in that population is acceptable provided the alternative DPA value is confirmed (or use of the DPA value determined from the confirmation procedure is acceptable), even though data generated using the DPA value based on frontal area were already provided to EPA, and provided the manufacturer informs EPA concurrently with the submission of data generated using the DPA value based on frontal area that submission of test results using an alternative DPA value is planned. In accordance with paragraph VI.H of A/C No. 55B, EPA will not conduct any confirmatory emission or fuel economy tests on any vehicle whose DPA value is in the process of being confirmed.

10. Although there is the possibility that DPA values may be updated later as discussed in item 5, above, manufacturers should consider the options described in paragraph VII.E of A/C No. 55B (which deals with the options available to a manufacturer if a

road coastdown confirmation fails prior to emission or fuel economy testing) while initially deciding on DPA values to use prior to emission and fuel economy testing.

11. If the manufacturer selects vehicles to be confirmed on the road after exhaust emission or fuel economy testing has begun, the options listed in paragraph VII.F of A/C No. 55B should be followed if the road coastdown confirmation vehicle fails.

12. The provisions specified in paragraph VII.F.4.a will not apply for the purposes of the voluntary abbreviated certification review program. EPA may request road coastdown confirmations of the coastdown time **and** alternative DPA value for an emission or fuel economy data vehicle even if a manufacturer has completed testing of that vehicle.

13. For engine families undergoing voluntary abbreviated certification review, EPA must be informed in advance of road coastdowns at EPA-approved independent laboratories (performed either in response to EPA challenges of DPA values or coastdown times or in response to the manufacturer's wishes as discussed in item 8, above) so EPA may exercise the option to audit those coastdowns. In notifying EPA, the manufacturer should state both his intent to conduct such coastdowns and when they will occur, since this will help minimize the possibility that EPA will request reconfirmations of those DPA values and coastdown times. Copies of all coastdown data generated at EPA-approved independent laboratories should be transmitted directly to EPA (in accordance with paragraphs VII.E.2 and VII.F.5 of A/C No. 55B).

14. Under the option described in paragraph VII.F.6, when some vehicles in a population have been tested and certified, a new population must be formed if the manufacturer does not confirm the original DPA value according to the acceptance criteria in section VIII of A/C No. 55B.

15. Manufacturers should use the acceptance criteria discussed in section VIII of A/C No. 55B When conducting dynamometer and road coastdown confirmations.

16. Using the carryover provisions discussed in section X of A/C No. 55B, manufacturers should use the appropriate formulas to adjust target coastdown times and should consult the applicable carryover guidelines when carryover of DPA values is sought. (Note: The optional value for K_0 used in equation (14) of

Attachment I to A/C No. 55B has been changed to 4.8×10^{-6} / F from the value of 1×10^{-6} / F which appeared in A/C No. 55A. For carryover purposes, it may be necessary for manufacturers to recalculate coastdown times and DPA values based on this new value.)

17. Although manufacturers may have engine families undergoing voluntary abbreviated certification review and are following the provisions of these guidelines, EPA always reserves the option to confirm DPA values in such engine families either on the dynamometer, on the road, or both.

18. From past EPA experience, two test facilities have been shown to be capable of conducting valid vehicle coastdowns on the road at this time (see attachment). Other test facilities may also be capable of such coastdowns, however, EPA should be notified in advance of performing coastdowns at such facilities so EPA has the opportunity to approve (or disapprove) those test facilities.

Attachment

Independent Test Facilities* Capable of Conducting
Valid Vehicle Coastdowns on the Road

1. Transportation Research Center of Ohio
East Liberty, Ohio 43319
Attention: Mr. Kenneth Truman
(513) 666-2011
2. Texas Transportation Institute
Texas A&M University
College Station, Texas 77843
Attention: Mr. Richard Tonda
(713) 779-3880 Ext. 375

*Mention of company or other organizational names is not to be

considered as an endorsement by the U.S. Environmental Protection Agency.